

**REMARKS**

Claims 1-9 are pending in the application. By this Amendment, claims 1 and 9 have been amended. No new matter has been added. It is respectfully submitted that this Amendment is fully responsive to the Office Action dated February 18, 2009.

**Claim Rejections – 35 U.S.C. § 101**

Claims 1-9 are rejected under 35 U.S.C. § 101 as not falling within one of the four statutory categories of invention. The Examiner indicates that “[w]hile the claims recite a series of steps or acts to be performed, a statutory “process” under 35 U.S.C. § 101 must (1) be tied to another statutory category (such as a particular apparatus), or (2) transform underlying subject matter (such as an article or material) to a different state or thing.”

However, it appears that the Examiner has cited an incorrect test to determine eligible subject matter under 35 U.S.C. § 101. The correct test under *Bilski* is the machine or transformation test. An applicant may show that a process claim satisfies § 101 either by showing his claim is tied to a particular machine, or by showing that his claim transforms an article.

**Independent Claim 1:**

Applicants submit that claim 1 clearly transforms an article. Specifically, the claim encompasses a transmission method involving the transforming steps of using several sequences

and, through repetition and cutting, produces a plurality of finite-length signals. The original signals (A, B, X, and Y) undergo a transformation and result in the production of a plurality of finite-length signals ( $S_{A,X}$ ,  $S_{B,Y}$ , ...). Similar arguments are applicable to independent claim 9 as well. Accordingly, withdrawal of this rejection is respectfully requested.

**Claim Rejections - 35 U.S.C. §103**

Claims 1-9 are rejected under 35 U.S.C. §103(a) as being unpatentable over Naoki Suehiro et al. This rejection is respectfully traversed.

**Independent Claim 1:**

With regard to Applicants' argument that Suehiro does not disclose or suggest the transmission data sequences of claim 1 having a data structure wherein a plurality of transmission data arranged with 0 data of a predetermined length added between the plurality of the transmitted data, the Examiner disagrees and asserts on page 2 of the Office Action the following:

The reference of Suehiro, who is the inventor in the present application, does suggest the transmission data sequences of claim 1 having a data structure wherein a plurality of transmission data are arranged with 0 data of a predetermined length added between the plurality of the transmission data. (See sections 1-4. Especially section 4.2, equation 7)

Section 4.2 of the Suehiro reference relates to an information transmission method which indicates that the transmitted signal is represented by equation (7). However, while equation (7) may include 0s in the transmitted signal, the 0s are not of a predetermined length added between the plurality of transmission data.

The Examiner appears to acknowledge this deficiency of Suehiro, since the Examiner takes the position on page 3, lines 1-2 of the Action that “section 4 does suggest the insertion of 0s to produce a plurality of transmission data sequences.” However, the Examiner does not indicate that section 4 suggests the insertion of 0s of a predetermined length between the plurality of transmission link.

Claim 1 has been amended such that it is clear that the null time is of a predetermined length when no signal is generated. More specifically, claim 1, as amended, now calls for

*producing a plurality of finite-length signals of a length Nm*

$$S_{A,X} = (x_0A, 0...0, x_1A, 0...0, x_2A, 0...0, ..., x_{m-1}A, 0...0)$$

$$S_{B,Y} = (y_0B, 0...0, y_1B, 0...0, y_2B, 0...0, ..., y_{m-1}B, 0...0)$$

...

(0...0 indicates a null time of a predetermined length where no signal is generated)

Further, regarding the “producing a plurality of transmission data sequences” feature of claim 1, the Examiner provides a reference in support of the Official Notice taken in the previous Office Action that the use of guard bands is well known in the art. The Taub reference titled, “Principles of Communication Systems,” discusses the use of guard bands in sampled signals (in Fig. 5.1-3(a)) being always required in practice, since a filter with infinitely sharp cutoff is not realizable. See, pages 187-188 of Taub. The guard band as described in Taub appears to be when the signal transmitted is zero. See, Fig. 5.1-3.

The Examiner also argues that Section 4 of Suehiro suggests the insertion of 0s to produce a plurality of transmission data sequences.

Applicants disagree with the Examiner’s characterization of Taub as the excerpt cited by the Examiner concerns the sampling theorem as related to low-pass signals. The sampling theorem involves, in general, taking samples of signals periodically every  $T_s$  seconds where  $T_s$  is the sampling time and then multiplying the sampled signals by the sinc function to shift and scale the sampled signal. The Taub reference does not teach or fairly suggest the use of guard bands in a signal such as those of the Suehiro reference.

Additionally, there is no teaching or suggestion in Suehiro to use the guard bands of the Taub reference in the periodic sequences or pseudo-periodic signals of Suehiro. Neither the Suehiro reference nor the Taub reference (either alone or in combination) teaches or fairly

suggests all of the features of claim 1, specifically, the “producing a plurality of transmission data sequences” feature of claim.

Even if Suehiro and Taub were to be combined, there is no support for the Examiner’s assertion that the resulting signal would be that of claim 1. The addition of the guard bands of Taub would fundamentally change the signals of the Suehiro reference. Neither reference provides a reasonable expectation that signal resulting from the combination of Suehiro and Taub would resemble or function the same as the signals of claim 1.

Applicants disagree with the Examiner’s argument that Section 4 of Suehiro suggests the insertion of a predetermined number of 0s to produce a plurality of transmission data sequences. The guard bands as presented by the Taub reference are not simply the insertion of 0s into a data signal. The guard bands are produced by using a sampling rate (frequency) for a filter that is above the Nyquist rate of a sampled signal. See, page 188 of Taub. Suehiro does not suggest the insertion of guard bands in the method described by the Taub reference.

Therefore, Applicants respectfully assert that there is no motivation or reason for one of skill in the art to combine the Taub and Suehiro references and there is no reasonable expectation of successfully producing the claimed invention upon combination of these references. Therefore, Applicants respectfully submit that the rejection is improper and request that it be withdrawn.

Application No.: 10/525,737

Response  
Attorney Docket No.: 052159

In view of the aforementioned amendments and accompanying remarks, Applicants submit that the claims, as herein amended, are in condition for allowance. Applicants request such action at an early date.

If the Examiner believes that this application is not now in condition for allowance, the Examiner is requested to contact Applicants' undersigned attorney to arrange for an interview to expedite the disposition of this case.

If this paper is not timely filed, Applicants respectfully petition for an appropriate extension of time. The fees for such an extension or any other fees that may be due with respect to this paper may be charged to Deposit Account No. 50-2866.

Respectfully submitted,

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